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10/528,961	03/22/2005	Katsura Hirai	05170/HG	9075

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EXAMINER	
ULLAH, ELIAS	
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2892	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,961	HIRAI, KATSURA	
	Examiner	Art Unit	
	ELIAS ULLAH	2892	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-44,47-51,75 and 76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-44,47-51,75 and 76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response an amendment filed on 3/9/2010.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 29-30, 36-37, 43-44 and 48-50 and 76 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawamura et al. (Kawamura, Pub. No.: US2003/0068581) of record.

As to claim 29, Kawamura shows a method for manufacturing an electrical circuit (Fig. 2) comprising a step of forming at least a part of the electrical circuit by impregnating [0247-0248] a conductive polymer ([0241 and 0248] wherein a conductive polymer is impregnated the hydrophilic surface i.e. polyvinylpyrrolidone see [0247]) solution in a solvent [0241] or a conductive polymer dispersed liquid in a dispersant, in a receptive layer ([0247] wherein hydrophilic region equals to respective layer) formed on a substrate 20, the conductive polymer exhibiting p-type conduction or n-type conduction [0203-0204 wherein conductive polymer e.g. PEDOT doped with impurities to exhibit either p type or n type], wherein the receptive layer ([0247] wherein hydrophilic region equals to respective layer) contains inorganic particles (see [0246 wherein

respective layer is comprises by inorganic particle e.g. metal ion]) and the receptive layer [0247] is porous ([0247] wherein polyvinylpyrrolidone is porous see US 20090171406 in [0076] for examiner conclusion).

With regard to claim 30 Kawamura shows after impregnating a solution [0248] or a dispersed liquid containing the conductive polymer in the receptive layer ([0247] wherein hydrophilic region equals to respective layer), forming the part of the electrical circuit by evaporating [0193] (at the temperature of 40-100 degrees solution to evaporate or dry) the solvent of the solution contains the conductive polymer ([0241 and 0248] wherein a conductive polymer is impregnated the hydrophilic surface i.e. polyvinylpyrrolidone see [0247]) or the dispersant of the dispersed liquid contains the conductive layer.

With regard to claims 36-37 Kawamura shows the method for manufacturing the electrical circuit wherein the solution or the dispersed liquid containing the conductive polymer ([0241 and 0248] wherein a conductive polymer is impregnated the hydrophilic surface i.e. polyvinylpyrrolidone see [0247]) is impregnated in the receptive layer ([0247] wherein hydrophilic region equals to respective layer) by ejecting the solution or the dispersed liquid containing the conductive polymer onto the receptive layer by a ink-jet printing method 0224].

With regard to claims 43-44, Kawamura shows an electrical conductivity of conductive polymer is 0.01S/cm or more or 1S/cm or more [0239].

With regard to claims 48-49, Kawamura shows the average particle diameter of the inorganic particles is .003 to .2 um [0220].

With regard to claims 50 and 76, Kawamura teaches a method for manufacturing an electrical circuit (Fig. 2) comprising a step of forming at least a part of the electrical circuit by impregnating [0247-0248] a conductive polymer ([0241 and 0248] wherein a conductive polymer is impregnated the hydrophilic surface i.e. polyvinylpyrrolidone see [0247]) solution in a solvent [0241] or a conductive polymer dispersed liquid in a dispersant, in a receptive layer ([0247] wherein hydrophilic region equals to respective layer) formed on a substrate 20, the conductive polymer exhibiting p-type conduction or n-type conduction [0203-0204 wherein conductive polymer e.g. PEDOT doped with impurities to exhibit either p type or n type] and a hydrophilic binder [0292] and a weight ratio of the inorganic particles ([0262] wherein sodium acetate salt is inorganic particles) to the hydrophilic binder ([0262] wherein graft polymerization layer is a hydrophilic binder see also [0241] is between 2:1 e.g. 67.7% and 20:1 e.g. 95% ([0262] wherein weight of polymerization is at least 90 % and inorganic particles is 10%).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 31-33, 38-39 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (Kawamura, Pub. No.: US2003/0068581) of record.

With regard to claims 31-33, Kawamura fails to teach specific ratio of water concentration the solvent of the solution containing the conductive polymer or the dispersant of the dispersed liquid containing the conductive polymer contains 30% or more of water and 5 to 70 % by weight of water soluble organic solvent and 10 to 30 % by weight of a water soluble organic solvent.

However, Kawamura teaches an arbitrary ratio of water in the solvent [0163]. Accordingly, it would have been obvious to one of ordinary skill in art to use teaching Kawamura in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. MPEP 2144.05.

With regard to claims 38-39, Kawamura teaches a general controllability of ejecting conductive polymer ([0241 and 0248] wherein a conductive polymer is impregnated the hydrophilic surface i.e. polyvinylpyrrolidone see [0247]), but fails to teach wherein an amount of the conductive polymer impregnated in the receptive layer is controlled by controlling an amount of the ejected conductive polymer per unit area. However, it is typical to control conductive polymer in the ink jet method by per unit area.

With regard to claim 51, Kawamura teaches the substrate 20 but fails to teach expressly the substrate is a polymer. However it is typical in the art a substrate can be made of polymer.

5. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (Kawamura, Pub.: US2003/0068581) in view of Kim et al. (Kim, 2003/0099874) of record.

With regard to claims 34-35, Kawamura fails to teach the solution liquid containing the conductive polymer has .001 to 1% by weight of a surfactant and the surfactant is a non-ionic surfactant.

However, Kawamura teaches the solution liquid containing the conductive polymer has .001 to 1% by weight of a surfactant [0040] and the surfactant is a non-ionic surfactant [0040]. At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use the solution liquid containing the conductive polymer has .001 to 1% by weight of a surfactant and the surfactant is a non-ionic surfactant teaching of Kim in the method for manufacturing an electrical circuit of Kawamura because a conductive polymer contain surfactant enable emulsion formation for polymer electrolyte.

6. Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (Kawamura, Pub.: US2003/0068581) in view of Hannah (Hannah, US 6,767,731) of record.

With regard to claims 40-42, Kawamura teaches polymer contains a dopant [0203-0204].

But Kawamura fails to teach the conductive polymer is oligomer having a repeat number of 4 to 19 or a polymer a repeat number of 20 or more; and conductive polymer has a repeat unit of thiophone, vinylene or a substitute compound thereof.

However, Hannah teaches the conductive polymer is oligomer having a repeat number of 4 to 19 or a polymer a repeat number of 20 or more; and conductive polymer has a repeat unit of thiophone, vinylene or a substitute compound thereof (col. 9, lines 14-29). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to use " the conductive polymer having a different repeat number and repeat unit" teaching of Hannah in the method for manufacturing an electrical circuit of Kawamura, because a conductive polymer with repeat number and unit are able to make alternating bonds and an alternating bonds provides a pathway for free electron charge carriers for a electronic circuit as taught by Hannah in (col. 9, lines 14-29).

7. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (Kawamura, Pub.: US2003/0068581) of record in view of MacQueen et al. (MacQueen, US 2001/0038910).

Kawamura teaches the inorganic particles are metal salt but fails to teach the inorganic particles are fumed silica.

However, MacQueen teaches an inorganic particle can be made of metal or fumed silica particles [0065]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to substitute fumed silica for metal salt teaching of MacQueen in the method for manufacturing an electrical circuit of Kawamura, because the inorganic particle can be made of either fumed silica or metal as taught by MacQueen in [0065].

8. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (Kawamura, Pub.: US2003/0068581) of record in view of Kurihara et al. (Kurihara, US 6,340,443) of record.

With regard to claim 75, Kawamura et al. teaches a method for manufacturing an electrical circuit (Fig. 2) comprising a step of forming at least a part of the electrical circuit by impregnating [0247-0248] a conductive polymer ([0241 and 0248] wherein a conductive polymer is impregnated the hydrophilic surface i.e. polyvinylpyrrolidone see [0247]) solution in a solvent [0241] or a conductive polymer dispersed liquid in a dispersant, in a receptive layer ([0247] wherein hydrophilic region equals to respective layer) formed on a substrate 20, the conductive polymer exhibiting p-type conduction or n-type conduction [0203-0204 wherein conductive polymer e.g. PEDOT doped with impurities to exhibit either p type or n type], wherein the receptive layer ([0247] wherein hydrophilic region equals to respective layer) is porous ([0247] wherein polyvinylpyrrolidone is porous see US 20090171406 in [0076] for examiner conclusion)

Kawamura fails to teach the inorganic particles consisting of colloidal silica particles.

However, Kurihara teaches inorganic particles consisting of colloidal silica particles (col. 4, lines 45-60). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to use “inorganic particles consisting of colloidal silica” teaching of Kurihara in the method for manufacturing an electrical circuit of Kawamura, because colloidal silica is typical inorganic particles to add to polyester e.g. a respective layer as taught by Kurihara in col.4, lines 45-60.

Response to Arguments

9. Applicant's arguments filed 3/9/2010 have been fully considered but they are not persuasive. Regarding claim 29, applicants argue that “However, paragraph [0076] of US 20090171406 teaches as follows: (US20090171406) [0076] The biocompatibie include synthetic polymers in the form of hydrogels or other porous materials, e.g., permeable configuration or morphologies, such as poly-vinyl alcohol, polyvinylpyrrolidone and polyacrylamidone, According to the above disclosure, the above biocompatible materials can include “polyvinylpyrrolidone" possibly "in the form of other porous material. This does not mean that polyvinylpyrrolidone is inherently porous or porous as a certainty.” The Examiner respectfully disagrees, and the Applicants are respectfully referred to review Hendricks (US 2003/0091609) in paragraph [0037], which discloses the synthetic polymer polyvinylprrolidone (PVP) is a porous material.

10. Applicants further argue that “the metal Ion or one prior art is different from the inorganic particles as claimed in amended claim 29 of the present application. Nor does it render the inorganic particles obvious.” However, the prior art (Kawamura) clearly teaches the receptive layer ([0247] wherein hydrophilic region equals to respective layer) contains inorganic particles (see [0246 wherein respective layer is comprises by inorganic particle e.g. metal ion]). Although the Applicant states that the metal ion of the prior art is different from the inorganic particles as claimed in amended claim 29, the Applicant has not recited any structural difference within the claim. Therefore, the Examiner gives the claim the broadest, reasonable interpretation, as per MPEP 2111,

and finds that the metal ions may be considered an inorganic particle, since they are indeed inorganic

11. Regarding claim 76, applicant argues that "the (styrene-4-sulfonyl) sodium acetate salt is then subjected to graft polymerization to form a polymer film from which homopolymers not subjected to graft polymerization are removed by immersing the formed film in ion-exchanged water ([0262] of Kawamura). Accordingly, there is no disclosure of an inorganic particle contained in the polymer film of Kawamura to support the rejections." However, Kawamura shows a polymer film comprises a (styrene-4-sulfonyl) sodium acetate salt wherein the sodium acetate is inorganic material. The claim states that the receptive layer contains inorganic particles. The Examiner has given the claim the broadest, reasonable interpretation, per MPEP 2111, and since the layer is disclosed by Kawamura to contain (syrene-4suflonyl) sodium acetate salt, which itself contains the inorganic particles of sodium acetate salt, the Examines finds that the material indeed contains sodium acetate salt, which are inorganic particles; hence Kawamura discloses the claimed limitation.

12. Applicant's arguments with respect to claim 47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS ULLAH whose telephone number is (571)272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elias Ullah/
Examiner, Art Unit 2892

/Thao X Le/
Supervisory Patent Examiner, Art Unit 2892